



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/496,323 | 02/02/2000 | David V. James | 50N3440/1243 | 6052 |

7590 03/30/2004

Gregory J Koerner
CARR & FERRELL LLP
2225 East Bayshore Road
Suite 200
Palo Alto, CA 94303

EXAMINER

TANG, KENNETH

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2127

DATE MAILED: 03/30/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

h

Office Action Summary

Application No.

09/496,323

Applicant(s)

JAMES ET AL.

Examiner

Kenneth Tang

Art Unit

2127

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-30 and 32-42 is/are rejected.
- 7) ☒ Claim(s) 11 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-42 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In Claims 1, 21, 41 and 42, the terms “scheduling request” and “request parameters” are indefinite because it is not made specifically clear where the request originated from.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-9, 12-29, and 32-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehtinen (US 2004/0040025 A1).**

4. As to claim 1, Lehtinen teaches a system for effectively performing a scheduling operation (*see Abstract*), comprising:

Art Unit: 2127

- an allocation manager configured to handle a scheduling request by analyzing a request (*page 2, [0009]*);
- a scheduling manager configured to schedule a task that is authorized by said allocation manager (*see claim 5*); and
- a processor for controlling said allocation manager and said scheduling manager to thereby perform said scheduling operation (*page 1, [0002]*).

5. Lehtinen fails to explicitly teach that the parameters of the request are being analyzed.

Lehtinen does teach a Resource Allocation Manager that analyzes the resource allocation situation from the device request (*page 2, [0009]*). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the resource allocation situation would have parameters because parameters are needed for analysis to be done by the Resource Allocation Manager.

6. As to claims 2 and 22, Lehtinen fails to explicitly teach wherein said task includes one or more isochronous processes that require a deterministic and guaranteed performance. However, it is well known in the art and obvious that processes can be finite/deterministic and delivered within a certain time constraint. In operating systems task management, it is time slicing.

7. As to claims 3 and 23, Lehtinen fails to explicitly teach wherein said scheduling operation is performed in an electronic network that is implemented according to an IEEE Std 1394 serial bus interconnectivity standard. However, it is obvious to combine the feature of an

IEEE Std 1394 serial bus interconnectivity standard because it is a standard in bus interconnectivity.

8. As to claims 4 and 24, Lehtinen fails to teaches wherein said task is performed on a device that includes one of a consumer-electronics device, an audio-visual device, a set-top box device, and a computer device (*page 1, [0003]*).

9. As to claims 5 and 25, Lehtinen teaches wherein said task includes one of a data transfer operation, a processor operation, a memory-access operation, and a signal-processing operation (*see Fig. 1*).

10. As to claims 6 and 26, they are rejected for the same reasons as stated in the rejection of claim 1.

11. As to claims 7 and 27, Lehtinen teaches wherein device software issues said scheduling request to said allocation manager for scheduling said task (*page 4, [0032]*).

12. As to claims 8 and 28, Lehtinen fails to explicitly teach wherein said allocation manager analyzes said resource requirement to limit total allocated device resources to one-hundred percent of available device resources. However, it is obvious that the resource requirement has to be limited to 100% because it is not possible for it to be higher.

13. As to claims 9 and 29, Lehtinen teaches wherein said scheduling operation is synchronized to a base cycle that serves as a timing reference for performing said task, said base cycle forming part of a contiguous base cycle sequence (*Fig. 1, items 11, and 3*).

14. As to claims 12 and 32, Lehtinen teaches wherein said allocation manager analyzes said scheduling request and returns one of an error message or a request grant message (*page 6, [0044]*).

15. As to claims 13 and 33, Lehtinen teaches wherein said allocation manager adds said task to a task table along with at least one of said resource requirement and said execution interval (*"Resource Allocation Table RAT", page 4, [0031]*).

16. As to claims 14 and 34, Lehtinen teaches wherein said allocation manager assigns a scheduling priority level to said task (*see claim 5*). Lehtinen fails to explicitly teach said scheduling priority level being inversely proportional to said execution interval. However, it would be obvious to one of ordinary skill in the art to have the highest priority be the shortest interval because faster is more advantageous.

17. As to claims 15 and 35, Lehtinen teaches wherein said scheduling manager references said task table to identify said task for scheduling based upon said scheduling priority level (*see claim 5*).

18. As to claims 16 and 36, Lehtinen teaches wherein said scheduling manager references a ready-to-run table to determine whether said task can immediately be scheduled and executed (*see Fig. 2*).

19. As to claims 17 and 37, Lehtinen teaches wherein said scheduling manager schedules and begins executing said task (*see claim 5*).

20. As to claims 18 and 38, Lehtinen teaches wherein said scheduling manager references a resources-consumed table to determine whether said task has consumed all allocated resources, said scheduling manager terminating said task when an allocated resource limit is reached (*see Fig. 2*).

21. As to claims 19 and 39, Lehtinen teaches wherein said processor resets said scheduling operation when a new base cycle begins (*page 5, [0040]*).

22. As to claims 20 and 40, Lehtinen teaches wherein said scheduling operation includes a plurality of tasks that are scheduled to execute in a sequence in which only one of said plurality of tasks may execute at any given moment (*page 1, [0003]*).

23. As to claims 21 and 41-42, Lehtinen teaches a system, computer-readable medium and method for effectively performing a scheduling operation, comprising the steps of:

- handling a scheduling request by analyzing a request with an allocation manager (*page 2, [0009]*);
- utilizing a scheduling manager to schedule a task that is authorized by said allocation manager (*see claim 5*); and
- controlling said allocation manager and said scheduling manager with a processor to thereby perform said scheduling operation (*page 1, [0002]*).

24. Lehtinen fails to explicitly teach that the parameters of the request are being analyzed. Lehtinen does teach a Resource Allocation Manager that analyzes the resource allocation situation from the device request (*page 2, [0009]*). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the resource allocation situation would have parameters because parameters are needed for analysis to be done by the Resource Allocation Manager.

25. **Claims 10 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehtinen (US 2004/0040025 A1) in view of Pearson (US 5,276,684).**

26. As to claims 10 and 30, Lehtinen teaches an allocation manager analyzing an execution interval but fails to explicitly teach wherein said allocation manager analyzes said execution interval to ensure that an execution interval duration T conforms to a symmetrical execution-interval specification requirement. However, Pearson teaches that the execution interval duration can be symmetrical (col. 6, lines 25-26). It would have been obvious to one of

ordinary skill in the art at the time the invention was made to include the feature of having a symmetrical interval for synchronization purposes.

Allowable Subject Matter

27. Claims 11 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (703) 305-5334. The examiner can normally be reached on 8:30AM - 7:00PM, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

• Application/Control Number: 09/496,323
Art Unit: 2127

Page 9

Kt
3/21/04



MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100